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FINAL REPORT

TURNOVER IN THE FOOD STAMP PROGRAM
IN 1979:
THE ROLE OF TRIGGER EVENTS

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CONTENTS

EXECUTIVE SUMMARY

This report is an extension of earlier research performed by MPR on
the topic of turnover of households that participate in the Food Stamp
Program. Like the earlier analyses, this report is based on data for
calendar year 1979 from the Income Survey Development Program (ISDP) data
base. The primary objective of the research reported here is to determine
the extent to which household transitions (i.e., entry into the program and
exiting from the program) are related to changes in the household's
socioeconomic circumstances. These changes in circumstances, which we
refer to generically as "trigger events," include changes in income levels,
asset levels, labor force status of household members, and entering and
exiting from the Unemployment Insurance program.

The methodology that is employed for the purpose of this report is
as follows. First, a tabular investigation of the relation between trigger
events and transitions is presented. Households in the ISDP sample are
"tracked" through the course of calendar year 1979 on a month-to-month
basis. When a comparison of a household's circumstances in successive
months indicates that a trigger event has occurred, the household is
further tracked until a transition (entrance or exit) occurs. The
probability that a household experiences a transition after a trigger
event, and the elapsed time between the two events, is tabulated and
analyzed.

In addition, a multivariate analysis of the effect of trigger
events on entry and exit rates is presented. This analysis is based on
Tuma's RATE model, which estimates transition probabilities as functions of

explanatory variables, in a manner similar to more familiar regression models. The emphasis in this application is on isolating the separate effects of the several trigger events on transition rates.

Our principal findings are as follows:

o   Trigger events, as we have defined them, are strongly correlated with the probability that a household experiences a transition (entry or exit). A household that experiences a trigger event is far more likely to experience a transition within six months than a household selected at random.

o   Most instances of entering and exiting from the program in response to trigger events occur in the same month as the trigger event, or shortly thereafter.

o   The event that is most likely to precipitate entry into the program is a decrease in the number of earners present in the household. Declines in pre-transfer income that result in a household's becoming eligible to participate in the program, household splitting, and exhaustion of UI benefits are also significant trigger events.

o   The events that are most likely to precipitate exit from the program are an increase in pretransfer income and an increase in the number of earners present in a household. Beginning to receive UI and becoming a couple (i.e., moving from one-head to two-head status) are also significant trigger events.

o   Changes in pretransfer income and in the number of earners are experienced by a large proportion of all households in the course of the year. To this extent, these phenomena are more important in explaining turn-over than more esoteric phenomena such as changes in household composition.

ACKNOWLEDGEMENTS

I. INTRODUCTION

Turnover, in the context of the Food Stamp Program, means the movement of households on and off the program. In contrast to analyses of program participation in a static framework, analyses of turnover focus on the dynamic aspects of eligibility for and participation in the Food Stamp Program. Relatively few studies have been made of food stamp turnover, and most have had to rely on data that are not nationally-representative (see, for example, Springs, 1977; Merck, 1980; Kirlin and Merrill, 1983). Recent work with the 1979 Income Survey Development Program panel (Carr et al., 1984) has taken advantage of a nationally-representative data base well-suited to the analysis of households' behavioral response to the Food Stamp Program. That study, by the authors of the present paper, confirmed others' findings of a relatively high rate of turnover in the Food Stamp Program. The ratio of annual to monthly participation was estimated at 1.7, indicating that the number of households who participate in the program over the course of a year is about 70 percent greater than the number who benefit in a given month. This estimate is consistent (although in the high range) with those obtained in earlier studies.[1]

Moreover, the ISDP analysis found large differences in turnover behavior (as measured by, for example, monthly exit probabilities) among groups with different socioeconomic characteristics. Households with less education, weaker labor force attachment, elderly or disabled members, or

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[1]Springs (1977) and Merck (1980), using data from the Seattle and Denver Income Maintenance Studies, estimated annual to monthly participation ratios ranging from 1.4 to 1.7. Kirlin and Merrill (1983), using data from a Chicago food stamp office, estimated a ratio of 1.4.

who receive other welfare benefits, have lower estimated turnover rates than other households. From this analysis of variations in transition rates associated with differences in static characteristics of households, we are led to investigate more closely the actual transition processes involved. Rather than simply identifying a given household characteristic that is, ceteris paribus, associated with a higher than average probability of entering the Food Stamp Program, we now seek to identify the event or events, insofar as they may be observed, that seem to precipitate a transition from nonparticipation to participation. To this end, we hypothesize the occurence of "trigger events" that may result in entry into, or exit from, the Food Stamp Program.

For instance, in our earlier research we determined that households headed by a single person had a higher probability of entering the program in any given month than did two-head households; conversely, one-head households had relatively lower probability of leaving the program in any given month. In the present paper, we are interested in knowing how a change (from a single head to two heads or vice versa) is related to change in program participation status, and whether the household makes a transition into or out of the program shortly after a change in household status or only after a lag. In this context, the change in household composition is the trigger event.

We have focused on a number of potential trigger events of interest. They are as follows:

o   Large changes in monthly pre-transfer income[1] between one month and the next. We have further distinguished between those cases in which the income change resulted in a change in eligibility status, and those in which it did not.

o   A change in the number of employed household members from one month to the next. We further distinguished between multiple-earner and single-earner households.

o   A change in asset holdings, specifically a decline in assets as a possible trigger of program entrance.

o   Changes in receipt of Unemployment Insurance, either exhaustion of UI benefits (as an entry trigger) or beginning to receive benefits (as an exit trigger).

o   Household composition change, defined here as a change from having one head to two heads, or vice versa.

The general approach to the analysis of trigger events is described in detail in Chapter II. Chapter III provides our empirical results; first, a descriptive overview of the relationship of transitions (entrances and exits) to the several triggering events discussed above, and second, the results of a multivariate analysis of the relationship of entrance and exit probabilities to triggering events using the RATE statistical model. As our earlier research has shown (Carr et al., 1984), this is a very useful methodology for isolating the effects of different variables on transition rates.

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[1]We also analyzed the effect of changes in total income on transitions into and out of the program; however, we found that these changes confounded exogenous changes in the household's economic status, such as the loss of a job, with changes in transfer income brought on by that event.

II. ANALYTIC APPROACH

As was discussed in the previous chapter, our principal objective
is to analyze how the movements of households into and out of the Food
Stamp Program are related to specific changes in household circumstances
relating to need, or trigger events. These trigger events relate to
changes in income, employment status, assets, and household composition. In
this chapter we discuss in greater detail how trigger events are defined
operationally, as well as how the relation of entrances and exits to these
trigger events is analyzed in both a tabular and a multivariate framework.

Defining Trigger Events

The concept of a "trigger event" as used in this paper refers to an
identifiable change in household circumstances that precedes, and may be
assumed to have had an influence on, a change in program participation
status. From earlier work we know that the characteristics of participants
and non-participants differ in certain identifiable ways. Moreover, we
know that, for at least a portion of the relevant population, transitions
between the states of participation and non-participation are relatively
frequent. These observations lead to an interest in defining more
specifically the changes in program status and the events associated with
them.

We have chosen to restrict our designation of trigger events to
phenomena that may reasonably be expected to "cause" or precipitate a given
result. The model of participation behavior embodied in our selection of
these events is that participation decisions depend on the relative costs
and benefits associated with participating in the Food Stamp Program as

opposed to not participating. These costs and benefits are in turn deter-
mined in general by program characteristics, (expected benefit), other
household income, and the possible "stigma" associated with participating.

In defining a framework for selecting trigger events we assume that
program characteristics do not change and are the same for all households.
The "stigma" effect cannot be observed directly although in static analyses
of participation behavior it is often represented by a vector of household
characteristics such as age, race, sex and education. In the tabular
analysis stigma is not accounted for in this way.[1]

Income, more broadly defined as relative "need," is the variable of
most interest here. Changes in participation status are assumed to be
associated with changes in need as measured in various ways. Income may
change as a result of changes in household composition, since income is
generally received by specific individuals within the household. Without
changes in family status, income may change as a result of job loss or
gain, a change in the level of earnings, or changes in receipt of nonlabor
income. Our final choice of trigger events was somewhat restricted by the
available sample size, with the result that not all possible variants of
income and household change were considered. We have attempted to define
changes in a way that captures as many of the observable "events" as
possible.

Our general approach consists of defining trigger events separately
for the analyses of entrances and exits, respectively. For instance, we
hypothesize that the probability of entering the program is positively

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[1]The sample size is not large enough in most cases to support
additional stratification of the tables.

correlated with a decline in income, whereas the probability of leaving the program is expected to be positively related to an increase in income. Accordingly, we have defined a pair of variables for most phenomena of interest, one of which is used as an explanatory variable in both the tabular and multivariate analyses of entry into the program, the other of which is used in the analyses of exiting from the program (an exception to this is asset holdings.) In order to facilitate the exposition, we first discuss how each triggering event is defined with respect to the analysis of program entrance, and then note how the definition of the variable is altered to make it appropriate for the exit analysis.

Income Change. We have defined the variants of the income change trigger event in terms of a variable measuring the ratio of pre-transfer income to the official poverty threshold. Such a specification has two distinct advantages. First, we use pre-transfer income, which includes income from such sources as wages and salaries, interest, dividends, rent, and self-employment income, but excludes payments received from the Aid to Families with Dependent Children (AFDC), Social Security, Unemployment Insurance (UI), and other income maintenance programs. The reason for excluding income from these sources is that changes in such incomes are not truly exogenous. That is to say, a decline in pre-transfer income may induce households both to apply for and receive transfer income from these other sources, and to enter the Food Stamp Program. Hence, the direction of causality between total income and transitions is unclear. By contrast, our variable reflects truly exogenous income changes (e.g., those caused by job loss), without being confounded by gains in certain types of income

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(e.g., AFDC) that result from economic hardship.[1] Second, the use of the ratio measure, as opposed to absolute income levels, helps to control for the effect of household size, since the poverty threshold accounts for differences in household size.

For the analysis of entry into the program, we have defined an income trigger event to have occurred if there has been a "large" (more than fifty percentage points) decrease in the ratio of pre-transfer income to the poverty line from one month to the next. We have further subdivided households who experienced such a drop in income according to their eligibility for food stamps before and after the income change. The reason for making this distinction is that those households whose incomes are very low after the income loss are presumably those with the greatest need and the greatest incentives to begin participation in the program.[2]

For the exit analysis, we have defined the trigger events in terms of the reverse phenomena. That is to say, households for whom the ratio of pre-transfer income to the poverty line increases by more than .5 between successive months are considered to have experienced an income trigger event. These households are further subdivided into those who are ineligible both before and after the change, those who as a result of this

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[1] In conducting this research, we made a preliminary investigation of the relation of total income to entrances and exits; no clear patterns emerge, presumably because of the confounding factors discussed here.

[2] It might be asked why households that are still (apparently) ineligible after the income loss are considered at all. First, some ineligible households do receive food stamps through administrative error and so forth. Second, there are undoubtedly errors in the reported income and expenses on the ISDP data base as well as incorrect classifications resulting from the simplifications in our method for simulating program eligibility.

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increase in income become ineligible for food stamps, and those who are still eligible despite an increase in income.

Changes in Employment Status of Household Members. A concept that is closely related to that of income change is the concept of change in the labor market status of household members. Specifically, we are interested in knowing whether the number of employed persons (or earners, for short) changes from month to month. A change in the number of earners can result from two events. In some cases, a household members gains or loses a job; in other cases, the household gains or loses a member who holds a job.

For our entrance analysis, we have defined the job change trigger event as a decrease in the number of earners present in a household between two successive months. We have further subdivided these households into those who lose all earners, and those in which the number of earners decreases, but there is still at least one earner. The reason for this distinction is that there are a large number of households with multiple earners, and hence varying degrees of presumed need and incentives to apply for food stamp benefits, depending on whether or not the household has lost its only source of employment income.

For the exit analysis, we have defined the trigger event as the converse of the trigger event used for the entry analysis. That is to say, a household is considered to have experienced a trigger event if the number of earners increased between two successive months. These households are further subdivided into those who went from having no earner to having some earners in two successive months, and those who already had one or more earners, but gained one or more additional earners.

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<u>Household Composition</u>. The makeup of a household can be a very important determinant of patterns of entry into, and exit from, the Food Stamp Program, as our previous research has shown. Whether the household has one or two heads, the number and age distribution of children, and the presence or absence of an elderly or disabled person can all influence transition rates. However, it is quite difficult to analyze the effect of household composition changes using the one-year longitudinal data set employed here. Household composition tends to appear relatively stable over the course of a twelve-month period.[1] While this may seem counterintuitive at first, it is important to remember that what can be observed in a finite sample period will not resemble "lifetime" rates of household change. If the probability of divorce or separation, for example, is fifty percent over a thirty-year period the probability that such a change will be observed in a one year period is roughly 1.5 percent. In other words, relatively low incidence of household change in a restricted time frame can be consistent with relatively high "lifetime" incidence of household change.

For the purpose of the entry analysis, we defined the trigger event in terms of whether the household changes from two-head to one-head status

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[1]By contrast, Bane and Ellwood (1983) successfully analyzed the dynamics of movements into and out of the Aid to Families with Dependent Children (AFDC) program, including the role of changes in household composition, using a framework similar to ours. However, their analysis is not strictly comparable to ours for two reasons. First, they used data on households over a period of ten years, and hence were able to observe more cases of changes in composition. Second, the nature of the AFDC program produces a closer relationship between household composition and program participation than is the case with the Food Stamp Program. Specifically, in nearly half the states, being a single parent is a requirement for AFDC eligibility.

between two successive months. We hypothesize that one-head households would be more likely to enter the program than other households because such households tend to have lower income and greater need than other households. Furthermore, Bane and Ellwood (1983) found that household status had an effect on program participation (in their case AFDC) over and above income per se. For the purpose of the exit analysis, we have defined the trigger event conversely; that is, as a movement from one-head to two-head status between two successive months.[1]

Changes in Asset Levels. Changes in asset levels would be expected to be associated with transitions out of the Food Stamp Program, for two reasons. First, eligibility for the program is partly based on assets. Second, it has been hypothesized that households would initially respond to economic hardship by drawing down assets, perhaps in part because of the presumed stigma associated with income maintenance programs, and thus enter the program only after their assets have reached a relatively low level.

For the purpose of the entry analysis, we have defined the trigger event as a movement from asset-ineligible status to asset-eligible status. We consider this measure to be preferable to a variable measuring asset levels as such because most month-to-month variations in asset levels take place at levels that are far higher than levels that would indicate need, incentive, or even eligibility to enter the program. For the exit analysis, we have not included an analogous trigger event. There is no

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[1]We also defined more complicated trigger events involving changes in household status combined with other trigger events such as changes in pre-transfer income; however, the tables based on that variant of our approach suffered from severe sample size problems, and are not reported here.

intuitive behavioral explanation for increases in assets during the period that a household is receiving food stamps that would lead to exit from the program; increases in asset levels could only come from gifts or other windfalls. Preliminary tabulations revealed very few participating households with significant increases in assets.

Exhaustion of Unemployment Insurance Benefits. As was noted above, it has been conjectured that needy households resort to applying for food stamp benefits only after depleting other sources of funds, such as assets. In particular, it has been suggested that the exhaustion of UI benefits may result in the entry of many households into the Food Stamp Program.

We have defined an unemployment insurance trigger event for the purpose of the entry analysis as follows: a household is considered to have experienced a trigger event if it reports the receipt of UI benefits in one month but not the succeeding month, and has no earners in the succeeding month. For the purpose of the exit analysis, a comparable trigger event is defined if a household reports receipt of UI benefits in one month but not in the preceding month.

Tabular Analysis

Our approach to the tabular analysis is as follows. As the discussion above has indicated, all of the triggering events that have been defined are based on comparisons of a some aspect of a sample household's economic status (e.g., pre-transfer income) in two consecutive months. We analyze each of the five types of trigger events in turn. The data on each household are analyzed to determine whether a trigger event occurred at any time within the sample period. For those households that did experience a

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trigger event, the number of months until the household experienced a transition into or out of the Food Stamp Program is ascertained.[1] If the household did not experience a transition, the number of months that elapsed until the household is no larger observed (either because the household attrited or because the sample period ended) is ascertained. Households are followed for at most six months after a trigger event to detemine whether or not a transition occurred. This constraint was imposed because the longer the elapsed time between a trigger event and a transition, the less plausible it becomes to argue that there is a causal relation between the two phemonena. (In fact, as we shall see in Chapter III, when both trigger events and transitions are observed, they tend to be very closely related in time.)

Tabulation of these elapsed times yields the numbers presented in the first two columns of Table II.1, a prototype for the tables presented in Chapter III. The numbers x_0, x_1,...x_6' in the "Result" column represent the (weighted) number of households that experience a transition concurrently with the trigger event, one month later, and so forth. The "No Result" column presents analogous counts of households that do not experience a transition. From these two columns of numbers we can derive the values of three functions, using methods described in detail in Appendix A. The first of these functions is the transition probability, which we denote by H(m) and whose values are displayed in the "H(m)" column of the table. This is the probability that a household will experience a

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[1]The analysis of entrance into the program is based on data on households that were not participating in the program at the time of the trigger event; the analysis of exits is based on the subsample of households that were participating.

TABLE II.1

TRIGGER EVENTS: TYPE
(Households in thousands)

Trigger Event	Month	Result	No Result	H(m)	f(m)	F(m)
(Type of Event)	0	x0	y0	H(0)	f(0)	F(0)
	1	x1	y1	H(1)	f(1)	F(1)
	2	x2	y2	H(2)	f(2)	F(2)
	3	x3	y3	H(3)	f(3)	F(3)
	4	x4	y4	H(4)	f(4)	F(4)
	5	x5	y5	H(5)	f(5)	F(5)
	6+	x6	y6	H(6)	f(6)	F(6)
Total Households	T	Sum x(m)	Sum y(m)			

transition m months after a trigger event, given that it has not already experienced a transition. The "f(m)" column contains the values of the probability function, f(m).[1] This is the probability that a transition occurs exactly m months after a trigger event. Finally, the "F(m)" column displays the values of the cumulative probability function, F(m). This is the probability that a transition occurs within m months after a trigger event.

Multivariate Analysis

The tabular analysis described above yields many useful insights into the phenomena in which we are interested. However, given that in many cases several trigger events are experienced by a single household, it is important that we be able to isolate the effects of the several trigger events. In addition, we wish to know whether trigger events have an effect on entry and exit rates over and above the effect of levels of income, which our earlier research have established as an important determinant of turnover in the program. This requires a multivariate analysis of transition probabilities. Specifically, the RATE model developed by Tuma has proved to be useful in previous research on turnover in the Food Stamp Program (Carr et al., 1983), and we employ it again here.

The RATE model relates transition rates to explanatory variables using the following functional relationship:

$$\ln r_{ijt} = Sb_{ijk} \, x_{kt}, \qquad (1)$$

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[1]The difference between H(m) and f(m) is that f(m) refers to the universe of all households, whereas H(m) refers only to households that have not experienced a transition or attrited by m-1 months after the trigger event. Hence, H(m) is always greater than or equal to f(m).

where r_{ijt} is the transition rate between states i and j at time t (e.g., if program participation is state 1, then the exit rate is r_{12t}), the variables x_{0t}, ... x_{kt} are the explanatory variables, (including a constant), and b_{ij1}, ..., b_{ijk} are the associated coefficients. In our application the explanatory variables include the following:

o Trigger event dummy variables that take a value of one
   if a trigger event occurred within the past three months
   and zero otherwise.[1]

o Variables measuring the level of pre-transfer income
   (measured relative to the poverty line), asset
   eligibility, and household composition (one versus two
   heads). These variables should not be confused with the
   trigger event dummy variables, which measure whether
   there has been a recent change in the household's
   status.

o Control variables measuring the ethnicity of the
   household, the presence of an elderly or disabled
   person, the presence of children, and the highest grade
   completed by the head of the household.

The interpretation of the coefficients of the model is discussed in Carr et al. (1984, Appendix C). In particular, the coefficients of the trigger event variables are used to derive the differential in entry and exit probabilities associated with trigger events. Consider two hypothetical households that have identical values for all explanatory variables at time t, except that the first household has not experienced a trigger event

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[1]Our tabular analysis permits the estimation of transition probabilities on a month-to-month basis for up to six months after a trigger event. However, the computational complexity of the RATE model makes experimentation with different specifications of right-hand side variables infeasible; hence, three months was chosen as a cutoff. The tabular analysis indicates that when transitions occur they almost always occur within three months after the trigger event; hence, it is highly unlikely that defining the trigger event in terms of a longer period would change our finding significantly.

within the past three months and the second household has had such an experience. Then the first household will have a predicted transition rate from state i to state j given by the equation

$$\ln r_{ijt} = Z_1,\qquad(2)$$

where Z, is the shorthand for the summation on the right-hand side of equation (1); for the second household, this rate is

$$\ln r_{ijt} = Z_2 = Z_1 + b,\qquad(3)$$

where b is the coefficient of the trigger event variable. If the coefficient is positive, a higher transition rate associated with the trigger event is implied, and conversely.

III. EMPIRICAL RESULTS AND CONCLUSIONS

Tabular Presentation of Trigger Events

A set of five different trigger events are defined for the analysis of entrance into the Food Stamp Program, and four events for program exits, as discussed in chapter two. For each of the resulting nine types of events a separate table has been constructed, showing how many households are observed to experience a particular trigger event, and how many subsequently were observed to enter or leave the Food Stamp Program. These entrances or exits are disaggregated by the number of months intervening between the trigger event and a "result" (i.e., entrance or exit). In order to calculate cumulative transition probabilities, the number of households who experience an event but do not enter or leave the program is broken down by the number of months they are present in the sample after experiencing a trigger event. The transition rates and cumulative transition rates shown (discussed in detail in Appendix A) are a means of comparing various trigger events and of summarizing the observed frequencies of events and results. For example, in the entrance trigger tables, the transition rate as of 2 months after a trigger event, $H(2)$, is the probability that a household will enter the program in exactly 2 months after the event, given that it has not already entered the program or left the sample. The cumulative probability that a household will enter the program within 2 months, $F(2)$, is the sum of the probability that it enters in the same month as the event, the probability that it enters in the first month after the event, and the probability that it enters in the second month after the event. For many of the events considered, the transition

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rate, $H(m)$, is highest in the early months following an event, indicating that when a result occurs it occurs quickly. As long as any results are observed with longer lags (up to six months) the cumulative transition rate, $F(m)$, continues to rise.

Although a household may experience more than one trigger event our analysis identifies only one event. In tabulations of a particular kind of event, for example, household composition change, only that type of event will be recognized, and all other cases are classified as "no event." Some households may contribute observations of events to more than one table (for example, to tabulations of changes in the number of earners and to tabulations of change in households headship), so that the frequencies of different trigger events may overlap to a degree and should not be considered strictly additive.

We choose to consider each type of event separately because of the difficulties associated with analyzing multiple trigger events. While we recognize that multiple trigger events may occur, trying to consider all possible combinations of events would quickly become unwieldy, and is problematic given the relatively small sample available. Most of the independent events tabulated below result in fairly small numbers of cases, implying that further disaggregation of the events is not likely to provide much additional information.

The problem of missing data is especially serious in this analysis, since the identification of trigger events and results depends on month-to-month comparisons of several different variables. Data are missing for at least some months for many households in the ISDP, and only limited imputa-

tions have been done to correct for this problem.[1] In the present

analysis, we have allowed for single isolated months of missing data, by

assigning the previous month's value to the missing month. With longer

gaps in the data, however, we lack sufficient information to assign values,

and have elected to exclude households with two or more consecutive months

of missing data for variables required to identify events or results. One

result of this decision is a substantial reduction in the size of the

sample -- from about 77 million households (weighted) to about 60 million

households. A direct consequence of this is that the total number of food

stamp exits and entrances reported here is somewhat lower than estimates

presented in our earlier work using the same database.

The effective reduction in sample size is about twenty percent.

While this is a substantial reduction, it cannot reasonably be avoided

because the identification of both events and results requires consecutive

months' data on transfers, other income, household composition, and food

stamp recipiency. Unfortunately, it is not possible to assess directly the

comparability of the excluded households to those included in the

analysis. The income distribution of such households is not known, for

example, because the reason for their exclusion is usually absent or

incomplete income information.

In restricting the analysis to the "complete" cases, we make an

implicit assumption that there is no systematic difference in the behavior

of interest between households with complete data and those with incomplete

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[1]Food stamp recipiency data were edited extensively in the initial
preparation of the longitudinal file, in order to maximize the use of
available participation information.

data. If, for example, households who experience trigger events are less likely to have complete data reported in the survey, our estimates of the relative frequency of trigger events will be biased downward. In the discussion that follows, which pertains to the "complete" cases only, this assumption should be kept in mind.

Entrance Triggers

As described in Chapter II, the events considered as possible triggers of program entrance are as follows: "significant" declines in pre-transfer income and associated income-eligibility changes, declines in the number of earners present, drawing down of assets as reflected in changes in asset-eligibility, exhaustion of Unemployment Insurance benefits, and changes in family status.

The common element in these sets of events is a presumed increase in "need," which would be expected, other things equal, to make a household more likely to enter the Food Stamp Program. The absolute and relative frequencies of the five different events identified vary widely, from about 1.1 million nonparticipating households changing from two head to single-head status (about 2 percent of all nonparticipants), to about 10 million nonparticipants (19 percent) experiencing a significant decrease in income and becoming (or remaining) eligible for food stamps. The estimated probabilities of entering the program within six months following particular events range from about one percent for drawing down assets to about 10 percent for reductions income from already low levels.

Pretransfer income. The income event hypothesized as a likely trigger for food stamp participation was specified as a significant decrease in income in the range relevant to eligibility for food stamps.

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Because decreases in earnings or other non-transfer income may be simultaneous with increases in transfer income, we use pre-transfer income as the basis for identifying this event. Specifically, a reduction in the poverty ratio (pretransfer income divided by the poverty line) of more than 50 percentage points is considered a significant decrease in income. To differentiate between such events experienced by households near the poverty line and those still well above poverty despite a reduction in income, the trigger event is defined with respect to food stamp eligibility as well as income change. Thus, the trigger events considered are a significant decrease in income associated with becoming eligible for food stamps, and a significant decrease associated with remaining eligible for food stamps. Significant declines in income among households remaining ineligible are included for completeness but this event is not expected to be a true trigger for food stamp participation. Households experiencing this event may, however, experience further declines in income later on, becoming eligible for and participating in the Food Stamp Program.

One feature of the sample used for this study is a surprising degree of volatility in monthly income. Although households with two or more sequential months with missing income data have been excluded from the analysis of trigger events, most of the remaining nonparticipant households are observed to experience significant changes in pretransfer income as defined above. As Table III.1 shows, more than three-quarters of the sample of nonparticipants experienced this income event. Inspection of individual sample records shows that large, frequent changes in total income are not unusual, with amounts going to zero for some months, as well as positive income amounts changing by hundreds of dollars. It is the

Table III.1

ENTRANCE TRIGGERS: PRETRANSFER INCOME
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
No event	0	76	11,993	.0063	.0063	.0063
	1	0	0	.0000	.0000	.0063
	2	0	0	.0000	.0000	.0063
	3	0	0	.0000	.0000	.0063
	4	0	0	.0000	.0000	.0063
	5	0	0	.0000	.0000	.0063
	6+	0	0	.0000	.0000	.0063
Total nonparticipants with no event	12,069	76	11,993			
Percent of all nonparticipants	63.3%					
Decrease in	0	119	216	.0149	.0149	.0149
pretransfer income;	1	11	131	.0014	.0014	.0164
newly-eligible	2	1	303	.0001	.0001	.0165
	3	19	329	.0026	.0026	.0191
	4	110	456	.0161	.0158	.0349
	5	14	1,078	.0022	.0022	.0370
	6+	1	5,178	.0002	.0002	.0372
Total nonparticipants with event	7,966	275	7,691			
Percent of all nonparticipants	15.4%					
Decrease in	0	93	44	.0481	.0481	.0481
pretransfer income;	1	48	18	.0267	.0254	.0736
still eligible	2	37	83	.0214	.0198	.0934
	3	3	215	.0019	.0017	.0951
	4	1	55	.0007	.0007	.0957
	5	4	68	.0030	.0027	.0984
	6+	0	1,264	.0000	.0000	.0984
Total nonparticipants with event	1,933	186	1,747			
Percent of all nonparticipants	3.7%					

(Continued)

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ENTRANCE TRIGGERS: PRETRANSFER INCOME
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
Decrease in	0	81	409	.0025	.0025	.0025
pretransfer income:	1	25	1,044	.0008	.0008	.0033
ineligible	2	39	687	.0013	.0013	.0046
	3	35	2,113	.0012	.0012	.0058
	4	58	547	.0021	.0021	.0079
	5	27	1,634	.0010	.0010	.0089
	6+	28	25,075	.0011	.0011	.0100
Total nonparticipants with event	31,802	293	31,509			
Percent of all nonparticipants	61.4%					
Total Nonparticipants	51,837					

Source: Calculated by Mathematica Policy Research, Inc.,
         from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

opinion of the authors that the largely-unedited monthly income amounts on the ISDP still pose significant problems for analysis. It seems likely that some subset of the households with apparent large income changes have in fact more stable incomes with a variety of data reporting inconsistencies. In addition, households whose income really does fluctuate widely from month to month may be expected to adjust to this in various ways if these changes are expected. Thus a large drop in income in a given month may not in fact be an "event" as considered here. It is impossible, of course, to distinguish between anticipated and unanticipated income fluctuations, from the sample data.

The income events as defined above do, however, appear to increase the probability of entering the Food Stamp Program. While less than one percent of the households who did not experience a significant drop in income enter the program, about four percent of those households who do experience a decline in income, and as a consequence become eligible, enter the program within six months of that event. About half enter the program in the first two months. A smaller number of households who are already eligible (but not participating) experience significant decreases in income. While this is necessarily a more rare event (to be subject to this event, a household would have to have income above half the poverty line and below the food stamp income screen), it is associated with a higher estimated probability of entering the program. About ten percent of the households with this event enter the Food Stamp Program within six months, with half of them doing so immediately and nearly all of the entrances occuring within three months of the income drop. This is consistent with

the expectation that already poor households will be more likely to begin receiving food stamps if their income falls even further.

Among households whose income remains above the food stamp eligibility cutoff despite a significant decrease, the probability of entering the program within six months is only one percent, and the distribution of entrances is fairly uniform across months. While these households are by definition not eligibile for food stamp immediately following the income decrease, they may experience further decreases in income after the initial event and become eligible at that time. The small number of households entering in month zero are apparent ineligible participants, but may in fact have been eligible for food stamps.[1]

Number of Earners. Over 30 percent of nonparticipant households experienced a decline in the number of earners, indicating job loss, other job leaving or the departure of an earner from the household. As Table III.2 shows, most of these events involved households with multiple earners, while about seven percent of all nonparticipants lost their only earnings. Among single earner households, job leaving (or departure of the earner) is estimated to result in food stamp entrance within six months with a probability of nine percent, with the entrance probability highest in the first two months. Among multiple-earner households the probability of entering the Food Stamp Program within six months after losing one source of earnings is about four percent, and the lag distribution is more uniform with only about a fifth of these households entering the program in

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[1]As detailed in Carr et al. 1984, the eligibility simulation involves a number of simplifying assumptions and imputations (of deductions, for example) that may be expected to result in some misidentification of eligibility status.

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Table III.2

ENTRANCE TRIGGERS: NUMBER OF EARNERS
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
No event	0	55	35,679	.0015	.0015	.0015
	1	0	0	.0000	.0000	.0015
	2	0	0	.0000	.0000	.0015
	3	0	0	.0000	.0000	.0015
	4	0	0	.0000	.0000	.0015
	5	0	0	.0000	.0000	.0015
	6+	0	0	.0000	.0000	.0015
Total nonparticipants with no event	35,734	55	35,679			
Percent of all nonparticipants	67.8%					
Decline in	0	198	214	.0552	.0552	.0552
number of earners	1	74	179	.0233	.0220	.0772
(now 0)	2	34	200	.0116	.0107	.0880
	3	3	408	.0011	.0010	.0890
	4	1	237	.0004	.0004	.0894
	5	4	289	.0020	.0018	.0912
	6+	2	1,744	.0011	.0010	.0922
Total nonparticipants with event	3,587	316	3,271			
Percent of all nonparticipants	6.8%					
Decline in	0	95	758	.0071	.0071	.0071
number of earners	1	91	707	.0073	.0072	.0143
(now > 0)	2	184	1,048	.0157	.0155	.0298
	3	43	1,237	.0041	.0040	.0338
	4	53	926	.0058	.0056	.0393
	5	26	1,374	.0032	.0030	.0424
	6+	0	6,826	.0000	.0000	.0424
Total nonparticipants with event	13,368	492	12,876			
Percent of all nonparticipants	25.4%					
Total Nonparticipants	52,689					

Source: Calculated by Mathematica Policy Research, Inc.,
from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

the first month.[1] Based on this evidence, the probability of entering the

Food Stamp Program when only one of the earners loses a job (or leaves the

household) is about half the probability of entering when the sole earner

loses a job or leaves. These households may be a subset of those with

income declines identified in the previous table and, as in the case of the

pretransfer income event, the "zero-earners" event seems to operate

immediately or with a short lag. Over half of households who enter the

program within six months of losing the sole source of earnings do so in

the first month.

Asset Eligibility. Assets may represent resources on which

households can draw in periods of financial need. If a household has

accumulated savings, for instance, it may draw on them initially when

income is interrupted. When such savings are depleted or exhausted the

pressure to find other resources -- such as public assistance -- is

presumably heightened. Furthermore, eligibility for the Food Stamp Program

(as well as for other assistance programs) requires that asset holdings not

exceed a maximum amount ($1750, or $3000 for elderly households, for the

Food Stamp Program in 1979), reflecting a consensus that such use of assets

is an appropriate response to reduced economic circumstances.

While drawing down assets in this context may be expected to

precede food stamp entry income cases, this is different from the other

triggering events considered because it presumably was itself "triggered"

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[1]As explained elsewhere, only one trigger event is recognized for
each household. Some of the multiple earner households who are observed to
lose part of their earnings may later lose all jobs or earners, and that
later event may operate as an entrance trigger. We cannot identify them in
these tables.

by some other event, such as job loss, for example. However, such complete sequences of events would be expected to be fairly rare in a 12-month analysis period, even if our analytic framework recognized multiple events. Analysis of asset reduction is of interest in itself, as well as in the sense in which such reductions represent continued or combined events.

In defining this event, we use asset-eligibility status changes to identify asset reductions in the relevant range. While the data include large changes in asset values for many households, we are interested in changes in the range relevant to food stamp participation decisions.

Over twenty percent of nonparticipant households are observed to become asset-eligible[1] during 1979. (It should be noted that these households may or may not be income-eligible for the Food Stamp Program.) Of these, the probability of entering the Food Stamp Program within six months is estimated at about one percent (Table III.3). Although there is some evidence of households' drawing down assets, it does not seem to be a strong trigger event as here defined. Moreover, the number of cases of households entering the program after becoming asset-eligible is too small to support definite conclusions about the timing of participation (unweighted n = 9).

Changes in asset-eligibility status, in particular drawing down assets, are observed fairly frequently and are in addition a natural adjunct to changes in income-eligibility status as trigger events expected to precede changes in food stamp participation status. Based on the tabular analysis, the asset event is not a strong predictor of program

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[1]Refer to Appendix B for specifications for this event. A complete discussion of the food stamp eligibility is included in Carr et al. (1984).

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Table III.3

ENTRANCE TRIGGERS: ASSETS
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
No event	0	127	41,732	.0030	.0030	.0030
	1	127	0	1.0000	.9970	1.0000
	2	0	0	.0000	.0000	1.0000
	3	0	0	.0000	.0000	1.0000
	4	0	0	.0000	.0000	1.0000
	5	0	0	.0000	.0000	1.0000
	6+	0	0	.0000	.0000	1.0000
Total nonparticipants with no event	41,986	254	41,732			
Percent of all nonparticipants	79.9%					
Become Asset-	0	79	1,097	.0075	.0075	.0075
Eligible	1	1	1,277	.0001	.0001	.0076
	2	1	441	.0001	.0001	.0077
	3	1	410	.0001	.0001	.0078
	4	1	287	.0001	.0001	.0080
	5	10	1,930	.0014	.0014	.0094
	6+	13	5,021	.0026	.0026	.0119
Total nonparticipants with event	10,569	106	10,463			
Percent of all nonparticipants	20.1%					
Total Nonparticipants	52,555					

Source: Calculated by Mathematica Policy Research, Inc.,
        from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

entrance. While we have included it here for completeness we have omitted from the multivariate analysis below.

Unemployment Insurance Exhaustees. Unemployment Insurance benefits have a fixed duration. Even when a job loser is covered by UI, benefits are paid until a job is found or the payment period ends, whichever comes first. Some households may, of course, receive UI and food stamps concurrently. Others, it is hypothesized, will receive UI initially and if benefits are exhausted before another job is found, turn to the Food Stamp Program and other assistance programs at that time. An estimated six percent of nonparticipants ended unemployment insurance without gaining a job in 1979. We assume that these cases represent either exhaustion of UI benefits (because unemployment lasted longer than the maximum period for which benefits are paid) or ending of benefits for some other reason (such as a ruling that the recipient is not entitled to benefits). Given such an event and given that a household is not already receiving food stamps, the probability that it will begin receiving food stamps within six months is about four percent (Table III.4). There is no marked skewing of the timing of food stamp entry toward early months, although the number of cases available for analysis is too small to support strong statements about the households who enter within six months after UI exhaustion (unweighted n = 15).

Family Status. A change in a household's economic circumstances may result from changes in individual members' needs, through job status changes for example, or as a result of changes in household composition. In particular, if one of two household heads leaves the household (as in the case of separation or divorce) the economic circumstances of the

Table III.4

ENTRANCE TRIGGERS: UNEMPLOYMENT INSURANCE
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
No event	0	146	49,093	.0030	.0030	.0030
	1	0	0	.0000	.0000	.0030
	2	0	0	.0000	.0000	.0030
	3	0	0	.0000	.0000	.0030
	4	0	0	.0000	.0000	.0030
	5	0	0	.0000	.0000	.0030
	6+	0	0	.0000	.0000	.0030
Total nonparticipants with no event	49,239	146	49,093			
Percent of all nonparticipants	94.3%					
End UI without a job	0	37	132	.0124	.0124	.0124
	1	26	209	.0092	.0091	.0215
	2	0	177	.0000	.0000	.0215
	3	13	424	.0054	.0053	.0268
	4	19	199	.0097	.0094	.0362
	5	2	319	.0011	.0011	.0373
	6+	0	1,427	.0000	.0000	.0373
Total nonparticipants with event	2,984	97	2,887			
Percent of all nonparticipants	5.7%					
Total Nonparticipants	52,223					

Source: Calculated by Mathematica Policy Research, Inc.,
from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

remaining household members will often be altered, especially if the
primary earner leaves the household.

We define an entrance trigger event to be a change in household
headship from two heads to a single head (changes from one to two heads are
reported as well, but are of less interest in the context of program
entrance.) A small proportion of the households analyzed were observed to
experience a change in family status, as defined here, during the 1979
sample period. Slightly less than four percent had a change either from
single head to two heads (marriage) or from two heads to one (divorce or
separation), and the number of "marriages" approximately equalled the
number of separations. As might be expected, when a household changes from
a single head to a couple it does not seem to be associated with food stamp
entry. Given a household split, however, the observed proportion of
households entering the program within six months is about five percent
(Table III.5). While the timing of entrance following such an event is
slightly skewed toward the initial months in the sample, the number of
cases of households entering the program following this event is extremely
small (unweighted n = 8).

Summary of Entrance Events. A comparison of the five alternative
trigger events considered for program entry may be based on the associated
estimated probabilities of entry within six months. On this basis, a large
decrease in pretransfer income from an already-low level and loss of all
earnings seem to have the strongest effects, with 9.8 and 9.2 percent
probabilities, respectively, of entrance within six months. Both of these
events are associated with about a five percent probability of entrance
into the program in the same month as the event. To put this number into

Table III.5

ENTRANCE TRIGGERS: FAMILY STATUS
(Households in thousands)

Trigger Event	Month	Entr	No Entr	H(m)	f(m)	F(m)
No event	0	135	50,183	.0027	.0027	.0027
	1	0	0	.0000	.0000	.0027
	2	0	0	.0000	.0000	.0027
	3	0	0	.0000	.0000	.0027
	4	0	0	.0000	.0000	.0027
	5	0	0	.0000	.0000	.0027
	6+	0	0	.0000	.0000	.0027
Total nonparticipants with no event	50,318	135	50,183			
Percent of all nonparticipants	96.1%					
1 Head:2 Heads	0	7	24	.0077	.0077	.0077
	1	0	162	.0000	.0000	.0077
	2	0	50	.0000	.0000	.0077
	3	0	37	.0000	.0000	.0077
	4	0	46	.0000	.0000	.0077
	5	0	77	.0000	.0000	.0077
	6+	1	500	.0020	.0020	.0097
Total nonparticipants with event	904	8	896			
Percent of all nonparticipants	1.7%					
2 Heads: 1 Head	0	12	91	.0107	.0107	.0107
	1	1	79	.0010	.0010	.0117
	2	18	115	.0192	.0189	.0306
	3	0	119	.0000	.0000	.0306
	4	0	151	.0000	.0000	.0306
	5	10	86	.0187	.0181	.0487
	6+	0	440	.0000	.0000	.0487
Total nonparticipants with event	1,122	41	1,081			
Percent of all nonparticipants	2.1%					
Total Nonparticipants	52,344					

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

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perspective, it should be noted that our earlier research (Carr et al., 1984) showed that a randomly selected household from the nonparticipant population had about a one half percent probability of entering the Food Stamp Program in any given month. Drawing down assets seems to have the weakest effect, with only about a one percent chance of program entry within six months, while declines in pretransfer income resulting in eligibility for food stamps, partial loss of earnings, UI exhaustion, and household splitting all are associated with probabilities of entry within six months of roughly four to five percent. Household splitting is identified as an event the least frequently of all events, while declines in earnings and in pretransfer income are identified most often.

Exit Triggers

We hypothesize that households leave the Food Stamp Program when their economic circumstances improve. This may come about because of finding a job, receiving other transfer income, adding a person with income to the households, or perhaps other reasons. As discussed in Chapter II, the events considered as possible triggers of exit from the Food Stamp Program are as follows: increases in pretransfer income (with and without eligibility), increases in the number of earners, beginning to receive Unemployment Insurance, and changes in family status. All of these events are chosen to represent changes in circumstances which may result in a participating household leaving the Food Stamp Program. In general there are fewer of these exit events observed than were entrance triggers discussed in the previous section, simply because the population of interest is food stamp recipients, a smaller group than nonrecipients.

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When exit triggers are identified, however, the associated estimated
probability of leaving the Food Stamp Program is high.

About four percent of all participants are estimated to experience
a siginifcant increase in pretransfer income[1] during 1979, and over 30
percent are simulated to be ineligible for food stamps following that
increase. Among households who become ineligible as a result of this
increase in income, the probability of leaving the program in the same or
following month is over fifty percent, with over 80 percent leaving within
six months. Among the relatively small number of participant households
simulated to be ineligible both before and after the increase in income,
the probability of exit in the first month is similar to that of newly-
ineligible households, although the six-month probability of exit is only
about forty percent. Due to the simplifying assumptions required for the
eligibility simulation described previously, it may be that many of the
households who leave are in fact "newly-ineligible" and that many of those
who do not exit the program really continuously eligible despite their
simulated ineligible status.

Households who are simulated to remain eligible despite the
increase in income are nearly as likely to leave the program in six months
(the estimated probability is about 80 percent) as those who appear to
become ineligible as a result of the change. Again, it may be that some of
these households, especially those who leave in the same month as the
increase in income, were in fact ineligible and the approximated eligibili-
ty simulation misidentified their status.

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[1]Defined as an increase in the poverty ratio (pretransfer income/
poverty line) of 50 or more percentage points.

Table III.6

EXIT TRIGGERS: PRETRANSFER INCOME
(Households in thousands)

Trigger Event	Month	Exit	No Exit	H(m)	f(m)	F(m)
No event	0	28	2,188	.0126	.0126	.0126
	1	0	0	.0000	.0000	.0126
	2	0	0	.0000	.0000	.0126
	3	0	0	.0000	.0000	.0126
	4	0	0	.0000	.0000	.0126
	5	0	0	.0000	.0000	.0126
	6+	0	0	.0000	.0000	.0126
Total participants with no event	2,216	28	2,188			
Percent of all participants	61.9%					
Increase in	0	219	33	.2664	.2664	.2664
pretransfer income;	1	230	18	.4035	.2960	.5624
newly-ineligible	2	80	27	.2484	.1087	.6711
	3	54	2	.2512	.0826	.7537
	4	15	12	.0943	.0232	.7770
	5	0	23	.0000	.0000	.7770
	6+	17	92	.1560	.0348	.8118
Total participants with event	822	615	207			
Percent of all participants	23.0%					
Increase in	0	78	15	.2516	.2516	.2516
pretransfer income;	1	39	3	.1797	.1345	.3861
still ineligible	2	0	0	.0000	.0000	.3861
	3	7	16	.0400	.0246	.4107
	4	0	24	.0000	.0000	.4107
	5	0	24	.0000	.0000	..4107
	6+	0	104	.0000	.0000	.4107
Total participants with event	310	124	186			
Percent of all participants	8.7%					

(Continued)

Table III.6 (Continued)

EXIT TRIGGERS: PRETRANSFER INCOME
(Households in thousands)

Trigger Event	Month	Exit	No Exit	H(m)	f(m)	F(m)
Increase in	0	141	106	.2601	.2601	.2601
pretransfer income;	1	11	1	.0373	.0276	.2877
eligible	2	63	1	.2226	.1586	.4463
	3	7	3	.0320	.0177	.4640
	4	1	17	.0048	.0026	.4666
	5	97	35	.5079	.2709	.7375
	6+	12	47	.2034	.0534	.7909
Total participants with event	542	332	210			
Percent of all participants	15.1%					
Total participants	3,580					

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

While the variability in monthly income on the ISDP may be over-stated due to uncorrected data problems, the incidence of income events for participants is not inconsistent with other evidence. In an earlier paper (Carr, et. al. 1984) the probability that a participant household will leave the program within a year is estimated at over fifty percent. Thus even this apparently high incidence of income events leaves a substantial portion of exits unexplained.

Earners. About 40 percent of participants are estimated to add an earner (at least temporarily) in 1979, and about 25 percent had no earner present prior to that change. The effect of these events on exit rates is strong. The probability of a household leaving the Food Stamp Program within six months of beginning to receive some earnings is 58 percent, and aobut half of these households leave in the same month (Table III.7). For the smaller group of households adding an earner (who already had one or more) the probability of exit is even higher (68 percent), but the lag distribution appears more uniform, with less than half leaving in the first two months. These high rates of exit are not surprising, since with multiple earners the probability of being eligible for food stamps is reduced.

Unemployment Insurance. Receipt of Unemployment Insurance benefits following unemployment may be delayed for a variety of reasons. A substantial number of unemployed persons postpone filing for benefits, and benefits may be delayed under certain circumstances even when filing is prompt. For example, persons who quit a job, while they may be able to receive benefits eventually, typically undergo a waiting period of several weeks before receiving UI. Some households may participate in the Food

Table III.7

EXIT TRIGGERS: NUMBER OF EARNERS
(Households in thousands)

Trigger Event	Month	Exit	No Exit	H(m)	f(m)	F(m)
No event	0	36	2,268	.0156	.0156	.0156
	1	0	0	.0000	.0000	.0156
	2	0	0	.0000	.0000	.0156
	3	0	0	.0000	.0000	.0156
	4	0	0	.0000	.0000	.0156
	5	0	0	.0000	.0000	.0156
	6+	0	0	.0000	.0000	.0156
Total participants with no event	2,304	36	2,268			
Percent of all participants	58.8%					
Increase in number of earners (from 0)	0	243	19	.2477	.2477	.2477
	1	193	54	.2684	.2019	.4496
	2	23	11	.0487	.0268	.4765
	3	18	41	.0411	.0215	.4980
	4	10	67	.0264	.0132	.5112
	5	16	89	.0530	.0259	.5371
	6+	20	177	.1015	.0470	.5841
Total participants with event	981	523	458			
Percent of all participants	25.0%					
Increase in number of earners (from > 0)	0	51	2	.0803	.0803	.0803
	1	109	0	.1873	.1722	.2526
	2	78	7	.1649	.1233	.3758
	3	21	46	.0541	.0338	.4096
	4	46	13	.1433	.0846	.4942
	5	94	19	.3588	.1815	.6757
	6+	1	148	.0067	.0022	.6778
Total participants with event	635	400	235			
Percent of all participants	16.2%					
Total participants	3,920					

Source: Calculated by Mathematica Policy Research, Inc.,
from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

Stamp Program during this waiting period, and for such households,
beginning to receive UI can be a trigger event for exit from the program.
This appears to be a relatively rare event, occuring for an estimated 11
percent of participants in 1979. For those participating households who do
begin receiving UI, the probability of leaving the Food Stamp Program
within six months is very high--nearly 80 percent--and about half leave in
the same month as beginning UI (Table III.8).

Family Status. A change in household status from a single head to
two heads has been hypothesized as an important event triggering exits from
the Food Stamp Program. In a study of transitions in the AFDC program
(Bane and Ellwood, 1983) such events were found to be very important exit
triggers for AFDC. Changes in household headship appear to be relatively
rare events among food stamp recipients, although occuring somewhat more
frequently than among nonparticipants. About three percent of participants
became two-head households in 1979. For this small group, the estimated
probability of program exit within six months for these households is
estimated at about 70 percent (Table III.9).[1]

Summary of Exit Events. Both increasing pretransfer income and
gaining an earner seem to be important exit trigger events in the context
of the Food Stamp Program. Close to half of the participants analyzed
experience such events and for those that do the probability of leaving the
Food Stamp Program quickly is high. Although beginning to receive UI and
becoming a couple appear to operate as exit triggers, these events

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[1]This should be interpreted with caution due to the very small
number of cases (unweighted n = 10) participating and changing from single
head to two heads in 1979.

Table III.8

EXIT TRIGGERS: UNEMPLOYMENT INSURANCE
(Households in thousands)

Trigger Event	Month	Exit	No Exit	H(m)	f(m)	F(m)
No event	0	92	3,183	.0281	.0281	.0281
	1	0	0	.0000	.0000	.0281
	2	0	0	.0000	.0000	.0281
	3	0	0	.0000	.0000	.0281
	4	0	0	.0000	.0000	.0281
	5	0	0	.0000	.0000	.0281
	6+	0	0	.0000	.0000	.0281
Total participants with no event		3,275	92	3,183			
Percent of all participants	89.3%					
Begin UI	0	138	17	.3503	.3503	.3503
	1	90	1	.3766	.2447	.5949
	2	49	35	.3311	.1341	.7290
	3	12	1	.1875	.0508	.7798
	4	0	0	.0000	.0000	.7798
	5	0	23	.0000	.0000	.7798
	6+	0	28	.0000	.0000	.7798
Total participants with event		394	289	105			
Percent of all participants	10.7%					
Total participants	3,669					

Source: Calculated by Mathematica Policy Research, Inc.,
          from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

Table III.9

EXIT TRIGGERS: FAMILY STATUS
(Households in thousands)

Trigger Event	Month	Exit	No Exit	H(m)	f(m)	F(m)
No event	0	103	3,298	.0303	.0303	.0303
	1	0	0	.0000	.0000	.0303
	2	0	0	.0000	.0000	.0303
	3	0	0	.0000	.0000	.0303
	4	0	0	.0000	.0000	.0303
	5	0	0	.0000	.0000	.0303
	6+	0	0	.0000	.0000	.0303
Total participants with no event	3,401	103	3,298			
Percent of all participants	96.3%					
1 Head:2 Heads	0	58	0	.5524	.5524	.5524
	1	15	0	.3191	.1429	.6952
	2	0	30	.0000	.0000	.6952
	3	0	2	.0000	.0000	.6952
	4	0	0	.0000	.0000	.6952
	5	0	0	.0000	.0000	.6952
	6+	0	0	.0000	.0000	.6952
Total participants with event	105	73	32			
Percent of all participants	3.0%					
2 Heads: 1 Head	0	2	1	.0833	.0833	.0833
	1	0	3	.0000	.0000	.0833
	2	0	0	.0000	.0000	.0833
	3	0	0	.0000	.0000	.0833
	4	0	0	.0000	.0000	.0833
	5	0	6	.0000	.0000	.0833
	6+	0	12	.0000	.0000	.0833
Total participants with event	24	2	22			
Percent of all participants	.7%					
Total participants	3,530					

Source: Calculated by Mathematica Policy Research, Inc., from 1979 ISDP Panel. (See Appendix A for details.)

H(m): Transition rate as of m months after a triggering event
f(m): Probability of transition after exactly m months
F(m): Cumulative probability of transition within m months

apparently occur infrequently in the sample, with the result that the number of cases available for analysis is extremely small. For this small sample, however, the associated estimated exit rates are high.

Most of the events hypothesized as exit triggers are associated with probabilities of exit within six months of 70 to 80 percent. The probability of exit in the same month is about 25 percent for households gaining a first earner and for those becoming ineligible due to increased income. This same-month probability is 35 percent for households starting UI, and 55 percent for those changing from single to couple status. This compares with our earlier finding (Carr et al. 1984) that a randomly selected household from the participant population has only about a seven percent chance of leaving the Food Stamp Program in any given month.

Multivariate Analysis of Trigger Events

The multivariate analysis, using maximum likelihood estimation of rates of program entry and exit, provides estimates of the independent effects of explanatory variables, as well as quantifying these effects and assessing their significance. These estimates confirm and extend the descriptive analysis presented above, and provide several interesting findings:

    o   Household pre-transfer income levels (as distinguished from "events") affect entry and exit rates, and in the expected direction. That is to say, households with high pre-transfer income tend to have both lower entry proba- bilities and higher exit probabilities than other house- holds, all other things equal.

    o   Furthermore, the occurrence of a trigger event, as we have defined it here, has a measurable and usually sig- nificant effect on entry and exit probabilities, even when other factors are controlled. The probability of entry into the Food Stamp Program is increased by the

occurance of a drop in pretransfer income, while the probability of exit is increased with increases in pretransfer income.

o Single-head households, households whose head has a low level of formal education, nonwhite households, and households with children and/or elderly or disabled members have a higher probability of entering the program in any given month, as well as a lower probability of leaving the program, all other things equal.

The results of estimating the RATE model are presented in Tables III.10 (entry) and III.11 (exit).[1] The results of estimating the basic model are shown in the first columns of each table. The models shown in the second column of Tables III.10 and III.11, respectively, include a the asset level variable as well.

In the entry models, both the level of pretransfer income and the income trigger (a drop in pretransfer income) have positive significant coefficients, and the effect of the level of pretransfer income is statistically significant. In the exit models (Table III.11) both the level of pretransfer income and the income trigger (an increase in income) have a significant impact on exit probabilities whether included together or not. The level of assets does not have the expected effect on transition probabilities; hence, we focus on the results presented in the first column.[2]

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[1]Because certain types of trigger events (such as household status changes) are relatively rare, severe econometric problems would result from including dummy variables representing these events in our model. Hence, we have chosen to focus on income and asset level changes. Similarly, econometric problems would be caused by adding explanatory variables, such as a variable representing a change in the number of earners, that is highly correlated with another variable, such as the variable measuring a change in pre-transfer income.

[2]Table B.2 and B.3 present the results of several alternative specifications, which yield results that are quite similar to those of the basic model.

TABLE III.10

ESTIMATED MODEL OF ENTRY
INTO THE FOOD STAMP PROGRAM

Independent variable	Model 1		Model 2	
Constant	-4.592		-6.377	
Highest grade completed	-.008	(-2.91)**	-.008	(-2.59)**
White head of household	-1.400	(-10.46)**	-1.248	(-9.31)**
One-head household	.871	(5.85)**	.759	(5.09)**
Elderly/disabled person	.298	(1.98)**	.269	(1.78)*
Presence of children	.808	(5.14)**	.787	(5.00)**
Pre-transfer income	-.308	(-15.04)**	-.331	(-13.95)**
Pre-transfer income trigger	.175	(1.00)	.066	(0.36)
Assets			1.985	(5.44)**
Number of observations	5,295		5,295	
χ^2	366.74		422.04	

Source: Calculated by Mathematica Policy Research, Inc. from 1979 ISDP Panel.

Note: Asymptotic t statistics are in parentheses.

*Significant at .05 level (one-tailed test).
**Significant at .01 level (one-tailed test).

TABLE III.11

ESTIMATED MODEL OF EXIT
FROM THE FOOD STAMP PROGRAM

Independent variable	Model 1		Model 2	
Constant	-3.649		-3.386	
Highest grade completed	-.073	(2.55)**	.074	(-2.59)**
White head of household	-.309	(-1.84)*	.301	(1.78)*
One-head household	-.510	(-2.71)**	-.501	(-2.64)**
Elderly/disabled person	-.752	(3.28)**	-.746	(-3.25)**
Presence of children	-.383	(-1.71)*	-.384	(-1.71)*
Pre-transfer income	.272	(5.62)*	.271	(5.56)**
Pre-transfer income trigger	1.202	(5.55)**	1.200	(5.54)**
Assets			-.283	(-0.55)
Number of observations	625		625	
χ^2	159.22		159.49	

Source: Calculated by Mathematica Policy Research, Inc. from 1979 ISDP Panel.

Note: Asymptotic t statistics are in parentheses.

*Significant at .05 level (one-tailed test).
**Significant at .01 level (one-tailed test).

Given the complex functional specification of the RATE model and the resulting difficulty in interpreting the coefficients, we have calculated predicted entry and exit probabilities for a number of hypothetical households in order to illustrate the effects of explanatory variables.[1] We have defined a "baseline" household that is white, has two heads, no children or elderly or disabled persons, whose head is a high school graduate, and whose pre-transfer income is double the poverty threshold. We further assume that this household has not experienced any trigger event in the past three months.

We have calculated monthly entry and exit probabilities for such a household, as well as for hypothetical households that are just like the baseline household with respect to all explanatory variables except one.[2] The difference between the entry and exit probabilities for these households and the baseline household thus reflects the effect of the explanatory variable in question. Specifically, the following cases were simulated:

o A head with an eighth-grade education

o A nonwhite household

o A household with one head

o A household with an elderly or disabled person present

o A household with children

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[1]See Carr et al. (1984, Appendix C) for the details of how these probabilities were calculated.

[2]These probabilities are conceptually analogous to the transition rates labeled H(m) in Tables III.1 through III.9 above.

o A household with pre-transfer income equal to the poverty
   threshold

o A household with pre-transfer income that has dropped to
   the poverty line within the past three months (i.e., an
   entry trigger event has occurred)

o A household with pre-transfer income that has risen to
   twice the poverty threshold within the past three months
   (i.e., an exit trigger event has occurred)

It is instructive to trace the predictions of the model as they

apply to hypothetical households that experience specified income and asset

changes. First, consider a "baseline" nonparticipant household. As shown

in Table III.12, the probability of entering the Food Stamp Program in any

given month is 0.11 percent.[1] After its pre-transfer income drops to the

poverty line, the predicted entry probability doubles to 0.16 percent for

the first three months, as the trigger event dummy variable takes a value

of one. Thereafter, the entry probability remains at about 0.16 percent.

A hypothetical participant household whose income is at the poverty

line and is otherwise just like a baseline household will have a probabili-

ty of 10.53 percent of leaving the program in any given month. If its

income increases to twice the poverty level, its exit probability jumps

dramatically, to 38.47 percent, for the first three months, and then drops

back down to 13.59 percent thereafter.

To summarize, changes in pre-transfer income levels have their

effect on transition rates (both entry and exit probabilities) within a

relatively short time frame (three months or less) after the change takes

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[1]The predicted entry probabilities in the first column of Table
III.12 are extremely low because household is defined in such a way as to
make the entry rate quite low (a two-head household without children,
etc.). For the sample as a whole, the average entry rate is 0.48 percent.

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TABLE III.12

PREDICTED ENTRY AND EXIT PROBABILITIES
FOR HYPOTHETICAL HOUSEHOLDS

	Entry probability	Exit probability
"Baseline" household	0.027%	18.92%
Head completed 8th grade	0.02	14.38
Nonwhite	0.07	14.39
One-head household	0.05	11.97
Children present	0.03	9.98
Elderly/disabled person present	0.05	9.50
Low pre-transfer income	0.03	14.78
Income trigger event (entry)	0.04	—
Income trigger event (exit)	—	50.01
Asset-eligible household	0.16	13.39
Asset trigger event (entry)	0.04	—
Asset trigger event (exit)	—	13.89

Source: Calculated by Mathematica Policy Research, Inc. from the 1979 ISDP
Panel.

place. This finding is consistent with the patterns shown in Tables III.1 (for entry) and III.3 (for exit).

The impact of changes in the control variables on entry and exit probabilities is also illustrated by Table III.12. The most noteworthy findings are that a nonwhite household has a probability of entering the program that is four times that of a similarly situated white household, and that a household containing an elderly or disabled person or a household with one head has a probability of leaving the program in any given month somewhat more than half that of an otherwise similar household. Expressed differently, households with elderly or disabled persons remain in the Food Stamp Program nearly twice as long as other households, all other things being equal.

Summary and Conclusions

We have conducted an investigation into the extent to which turnover among households that participate in the Food Stamp Program is precipitated by so-called trigger events, as we have defined them. Our principal findings are as follows:

- o Trigger events, as we have defined them, are strongly correlated with the probability that a household experiences a transition (entry or exit). A household that experiences a trigger event is far more likely to experience a transition within six months than a household selected at random.

- o Most instances of entering and exiting from the program in response to trigger events occur in the same month as the trigger event, or shortly thereafter.

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o The event that is most likely to precipitate entry into
   the program is a decrease in the number of earners
   present in the household. Declines in pretransfer income
   that result in a household's becoming eligible to
   participate in the program, household splitting, and
   exhaustion of UI benefits are also significant trigger
   events.

o The events that are most likely to precipitate exit from
   the program are an increase in pretransfer income and an
   increase in the number of earners present in a house-
   hold. Beginning to receive UI and becoming a couple
   (i.e., moving from one-head to two-head status) are also
   significant trigger events.

o Changes in pretransfer income and in the number of
   earners are experienced by a large proportion of all
   households in the course of the year. To this extent,
   these phenomena are more important in explaining turnover
   than more esoteric phenomena such as changes in household
   composition.

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APPENDIX A

CALCULATING TRANSITION PROBABILITIES
FROM TABULAR DATA

One of the products of our analysis that is of the most interest is

the timing of transitions to and from the Food Stamp Program; that is,

probability that a household will experience a transition (entrance or

exit) concurrently with a trigger event, one month later, two months later,

etc. Another way of looking at timing is in terms of cumulative

probabilities; that is, the probability that a transition will occur within

one month, two months, etc.

The process of estimating these probabilities is complicated by the

fact that we observe different households for different lengths of time.

For instance, one household may experience a triggering event in the first

month of the sample period, implying that we can "track" that household for

up to eleven months to a transition occurs, whereas another household may

experience a triggering event with only a few months to go in the sample

period. Furthermore, households can form during the sample period, and

existing households can dissolve or attrite.[1] The practical implications

of these facts can be illustrated by considering a hypothetical household

that does not experience a transition within three months after a

triggering event, and is not observed thereafter. This household provides

information relevant to the probability that a transition takes place

within zero, one, two, or three months. However, we have no way of knowing

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[1]For a further discussion of the details of how these cases are
dealt with in our data base, see Carr et al. (1984, Appendix A).

whether this household would have epxerienced a transition after four,
five, six, ..., months, had they remained in the sample. Statistician
refer to this problem as one of progressive censoring.

We have dealt with these complications in the following manner. In
our tables, for each category defined in terms of the presence or absence
of a triggering event, we have distributed the households as follows:

	Result occurs after m months								Result does not occur; observed for m months						
m =	0	1	2	3	4	5	6	m =	0	1	2	3	4	5	6+
	a	b	c	d	e	f	g			h	i	j	k	l	m	n

The letters a, b, ..., n represent the (weighted) number of households in
each category. The total of households is T. From such a table, we can
directly estimate the transition rate as of m months after a triggering
event, which we denote by H(m). The transition rate is the ratio of the
number of households to whom a result occurred to the number of households
transition who were "candidates" for such a result, insofar as they were
still in the sample and the result had not yet occurred. Thus,

$$H(0) = \frac{a}{T}$$
(A.1)

$$H(1) = \frac{b}{T - (a + h)}$$
(A.2)

$$H(2) = \frac{c}{T - (a + h + b + i)} \qquad (A.3)$$

and so forth.[1]

From the series of numbers, H(0), H(1),..., we can derive estimates of the probability distribution of the number of months elapsing between a triggering event and a transition for an uncensored population. More formally, if the cumulative probability that a result had occurred within t-1 months is F (t-1), and the probability that the result occurs after exactly t months is f(t), then the transition rate as of t is

$$H(T) = f(t)/(1-F(t-1)). \qquad (A.4)$$

Given a series of numbers H(0), H(1),..., we can deduce f(0), f(1),... and F(0), F(1),... by means of the following recursive technique:

$$f(0) = F(0) = H(0) \qquad (A.5)$$

$$\begin{aligned} f(1) &= H(1) \cdot (1-F(0)) \\ &= H(1) \cdot (1-H(0)) \end{aligned} \qquad (A.6)$$

$$F(1) = f(0) + f(1) \qquad (A.7)$$

$$f(2) = H(2) \cdot (1-F(1)) \qquad (A.8)$$

$$F(2) = F(1) + f(2) \qquad (A.9)$$

etc.

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[1]One thing that must be kept in mind is that we are assuming that transition rates are the same for sample attriters and nonattriters, since our calculations based only on data on the latter. To put it differently, we must assume that sample attrition is random.

APPENDIX B

METHODOLOGICAL DETAILS AND SUPPLEMENTAL RESULTS

Specification of Trigger Events

The general approach to identifying trigger events is outlined in the text. The specifics of the definitions of such events are as follows:

Pretransfer Income. Pretransfer income is defined as gross income less AFDC, SSI, UI, Social Security, and other welfare payments. A "significant" change in pretransfer income is defined to be a change in the poverty ratio in excess of 50 percentage points from one month to the next. The poverty ratio is defined as pretransfer income divided by the official poverty line. Changes in pretransfer income are further disaggregated by the simulated eligibility status of the household following the change in income. (For details on the simulation of food stamp eligibility, see Carr et al., 1984.) An entrance trigger event is identified when a decrease in the poverty ratio of more than 50 percentage points is experienced by a household that is not participating in the food stamp program. There are three types of such events considered, depending on whether the household is eligible for food stamps or not before and after the event. An exit trigger event is identified when an increase in the poverty ratio larger than 50 percent is experienced by a household that is participating in the Food Stamp Program, again disaggregated by whether or not the household is eligible for food stamps before and after the increase in income relative to the poverty line.

Number of Earners. The number of earners present in a household may change from one month to the next. An entrance event is defined when a

non-participating household loses an earner (has fewer earners in one month than in the previous month). Such events are differentiated according to whether the household has no earners fol. wing the decrease or still has one or more earners. An exit event is identified when a participating household gains an earner, again differentiated by whether it then has a single earner or has more than one earner.

Assets. Monthly asset amounts have been imputed as a function of reported asset income and assumed rate of return. In order to identify changes in asset values that are in a range relevant to food stamp participation changes, we use the simulation of asset-eligibility (part of the food stamp eligibility simulation). An entrance event is defined if a non-participant household becomes asset-eligible between one month and the next. (A symmetric exit event could be specified, but it seems to have little analytical significance and in fact almost no such "events" are observed in the data.)

Unemployment Compensation. Unemployment compensation receipt and number of earners are compared for every pair of months. If unemployment compensation is received by a non-participant household in one month but not in the next and if the number of earners in the household has not increased, an entrance event is identified. (If UI ended concurrently with an increase in the number of earners we assume the new job is the reason for ending UI, not exhaustion of benefits.) If a participating household is seen to receive no UI in one month but to begin receiving UI in the following month, an exit event is identified.

Family Status. Family "headship" status is coded on the ISDP longitudinal extract as either two heads, single male head, or single

female head. A change in family status is identified if headship changes from one month to the next from two heads to one, or from one head to two. Both types of changes are included in both the entrance trigger and exit trigger tables, although as a practical matter changes from two heads to one are of primary interest in analyzing entrance events, and changes from one head to two of most interest in identifying exit events.

Participation Status. Events are defined jointly with participation status. For purposes of identifying events that may trigger program entrance, a change such as a decline in pretransfer income relative to the poverty line will be considered a "true" trigger event only if the household is not participating in the Food Stamp Program at the time that the event is experienced. The summary tables in this appendix show counts of "entrance events" experienced by participants and "exit events" experienced by nonparticipants, but they have no analytical significance in our framework and are not included in the discussion in Chapter III. (The appendix tables show a few exits of households classified as nonparticipants and entrances by participants. These are households who changed participation status between the identification of an event and concurrent participation status, and the identification of a result. For example, a household might gain an earner while not participating in the Food Stamp Program. In the exit trigger tabulation it will be classified as "event--not participating." If it subsequently enters the program, that transition will not be identified in the exit trigger tabulation -- since that table only identifies exits as results -- but if it leaves the program again within the analysis period that event will be recognized and the household will be counted in the "exit" category.)

Multiple Trigger Events or Results

The framework adopted for this analysis is a simplication of the range of possible events and results that might be considered. We have chosen to look at one possible kind of event (with perhaps two variations) at a time, and to ignore, in that tabulation, other kinds of events that might be experienced. Each tabulation is generated by a program that looks for the first occurrence of a given type of event. Once it has been identified, no further "event" changes are sought. Thus, if a household loses an earner but later gains an earner, only the loss of an earner will be identified for purposes of entrance trigger tables and only the gain of an earner will be identified for purposes of exit trigger tables. Moreover, although we recognize that multiple events may in fact occur, we have not included such combinations in our analysis. In preliminary inspection of the data, we generated some cross-tabulations of income-related events by family status events. Such concurrent combinations appear to occur only rarely (partly because few changes in family status are observed) and the impact of the income-related event is (as far as can be determined) not affected by the concurrent change in family status. As a practical matter the choice of events was limited both by sample size (the difficulty of obtaining a large enough set of households in any one of an extremely disaggregated set of events) and expositional feasibility. As it is, we identify eight separate event variations for analysis of entrance triggers, and seven variations as exit triggers. If we had attempted to analyze combinations of these trigger events the analysis would quickly become intractable. Even limiting such combinations to concurrent pairwise groupings would generate close to fifty different "events".

In addition to ignoring multiple or reversed trigger events, we
make no attempt to identify reversed results. Once a result (entrance or
exit) has been identified, further changes in food stamp participation
status are not recognized in the tabulations. This is consistent with our
general goal of identifying events that predict changes in program status,
rather than describing participation behavior (such as length or frequency
of participation spells) in itself.

Incomplete Data

Because only limited imputations have been done for missing data on
the ISDP longitudinal extract, data items of interest are missing for a
substantial number of households. Missing data is a particular problem for
this analysis, since identification of trigger events and program results
requires pairwise comparisons, for every month, of several different
variable values. For this paper, we decide to retain cases where key data
were missing for only one month (assigning the value from the previous
month to the missing month). Cases with two or more consecutive months of
missing data, for any of the variables required to identify trigger events
or program results, were excluded from the analysis. For most tables,
close to half the households were thus excluded from the analysis.

The supplemental tabulations included in this appendix show the
total frequencies of households with complete and incomplete data. If data
required to identify an event (e.g., income items, number of earners,
household presence, etc.) are missing for two or more consecutive months,
the household is excluded for analysis of that event and assigned to the
"incomplete" event category. Once a household has been so assigned, no
attempt is made to identify a result (food stamp exit or entrance), so that

all cases with incomplete event information are necessarily assigned to the "incomplete result" class as well. If an event is identified before two or more consecutive missing months of information are encountered, the household will be assigned an event type but still is an incomplete case, since the occurence or non-occurence of a subsequent "result" can only be unequivocally determined if data are complete.

Supplemental Tabulations

Table B.1 presents unweighted frequencies of all events and results in summary form, as well as households with incomplete event and/or result information. These represent the full tabulation of all households for each event, subsets of which (weighted) make up the text tables.

Tables B.2 and B.3 present the results several alternative specifications of the RATE model. The coefficients of the variables representing the level of assets and the presence of an asset trigger event do not have the expected signs. Otherwise, these models yield results quite similar to those of the models presented in Chapter III.

TABLE 8.1

TRIGGER EVENT SUMMARIES
(unweighted counts)

Entrance Event Summary
Pretransfer Income Event

	Incomplete	No Entrance	Entrance	Total
Incomplete	452	0	0	452
Nonparticipants				
No Event	924	1314	12	2250
Decrease PTY/ Newly Eligible	131	736	27	894
Decrease PTY/ Still Eligible	55	184	31	270
Decrease PTY/ Ineligible	438	2891	35	3361
Participants*				
No Event	130	471	0	601
Event	16	114	15	145
Total	2146	5710	120	7976

Exit Event Summary
Pretransfer Income Event

	Incomplete	No Exit	Exit	Total
Incomplete	452	0	0	452
Participants				
No Event	126	456	9	591
Increase PTY/ Newly Eligible	0	0	2	2
Increase PTY/ Still Eligible	5	37	35	77
Increase PTY/ Ineligible	7	53	65	125
Nonparticipants**				
No Event	1050	1206	0	2256
Event	506	3935	32	4473
Total	2146	5687	143	7976

Entrance Event Summary
Number of Earners Trigger Events

	Incomplete	No Entrance	Entrance	Total
Incomplete	452	0	0	452
Nonparticipants				
No Event	1341	3475	0	4826
Decline in number of earners (now 0)	96	322	43	461
Decline in number of earners (now > 0)	212	1240	43	1495
Participants*				
No Event	121	465	0	586
Event	22	117	17	156
Total	2244	5619	113	7976

Exit Event Summary
Number of Earners Trigger Event

	Incomplete	No Exit	Exit	Total
Incomplete	452	0	0	452
Participants				
No Event	118	461	9	588
Increase in number of earners (from 0)	13	75	57	145
Increase in number of earners (from > 0)	5	21	39	65
Nonparticipants**				
No Event	1419	3495	0	4914
Event	213	1580	19	1812
Total	2220	5632	124	7976

Entrance Event Summary
Unemployment Insurance Trigger Events

	Incomplete	No Entrance	Entrance	Total
Incomplete	452	0	0	452
Nonparticipants				
No Event	1651	4799	20	6470
End UI Without a Job	29	238	15	282
Participants				
No Event	146	599	0	745
End UI Without a Job	4	21	2	27
Total	2282	5657	37	7976

Exit Event Summary
Unemployment Insurance Trigger Events

	Incomplete	No Exit	Exit	Total
Incomplete	452	0	0	452
Participants				
No Event	147	576	18	741
Begin Unemployment Compensation	1	13	18	32
Nonparticipants				
No Event	1642	4718	0	6360
Begin Unemployment Compensation	35	344	12	391
Total	2277	5651	48	7976

TABLE B.1 (continued)

Entrance Event Summary
Family Status Trigger Events

	Incomplete	No Entrance	Entrance	Total
Incomplete	452	0	0	452
Nonparticipants				
No Event	1651	4862	18	6531
1 Head: 2 Heads	13	86	3	102
2 Head: 1 Head	15	98	8	121
Participants*				
No Event	148	605	0	753
Event	0	15	2	14
Total	2279	5666	31	7976

Exit Event Summary
Family Status Trigger Event

	Incomplete	No Exit	Exit	Total
Incomplete	452	0	0	452
Participants				
No Event	148	605	0	753
1 Head: 2 Heads	0	8	2	10
2 Head: 1 Head	0	7	0	7
Nonparticipants**				
No Event	1651	4880	0	6531
Event	28	192	3	223
Total	2279	5692	5	7976

Entrance Event Summary
Assets Trigger Event

	Incomplete	No Entrance	Entrance	Total
Incomplete	452	0	0	452
Nonparticipants				
No Event	1517	4015	19	5551
Become Asset Eligible	161	1034	9	1204
Participants*				
No Event	147	616	0	763
Become Asset Eligible	1	5	0	2
Total	2278	5670	28	7976

*Entrance events not analyzed for participants.

**Exit events not analyzed for nonparticipants.

TABLE B.2

ESTIMATED MODEL OF ENTRY
INTO THE FOOD STAMP PROGRAM

Independent variable	Model 1		Model 2		Model 3	
Constant	-6.401		-6.367		-5.427	
Highest grade completed	-.007	(-2.49)**	-.008	(-2.59)***	-.009	(-3.13)***
Ethnicity	-1.205	(-8.97)***	-1.247	(-9.30)***	-1.398	(-10.46)***
One-head household	.734	(4.91)***	.755	(5.08)***	1.020	(7.00)***
Elderly/disabled person	.302	(2.00)**	.261	(1.74)*	.777	(5.51)***
Presence of children	.771	(4.91)***	.788	(5.00)***	(.847	(5.67)***
Pre-transfer income	-.327	(-13.78)***	-.334	(-15.07)***		
Pre-transfer income trigger	.148	(0.80)			.695	(4.08)***
Assets	2.016	(5.53)***	1.994	(5.48)***		
Asset eligibility trigger	-1.386	(-2.73)***			-1.373	(-2.71)***
Number of observations	5,295		5,295		5,295	
x^2	433.97		421.92		259.35	

Source: Calculated by Mathematica Policy Research, Inc. from 1979 ISDP Panel.

Note: Asymptotic t statistics are in parentheses.

*Significant at .10 level (one-tailed test).
**Significant at .05 level (one-tailed test).
***Significant at .01 level (one-tailed test).

TABLE B.3

ESTIMATED MODEL OF EXIT
FROM THE FOOD STAMP PROGRAM

Independent variable	Model 1		Model 2		Model 3	
Constant	-3.304		-3.297		-3.370	
Highest grade completed	.075	(2.60)***	.083	(2.94)***	.074	(2.62)***
Ethnicity	.300	(1.78)**	.347	(2.03)**	.239	(1.43)*
One-head household	-.497	(-2.61)***	-.575	(-3.03)***	-.708	(-3.99)***
Elderly/disabled person	-.742	(-3.23)***	-.802	(-3.50)***	-.818	(-3.58)***
Presence of children	-.385	(-1.72)**	-.398	(-1.76)**	-.363	(-1.64)*
Pre-transfer income	.271	(5.55)***	.393	(10.12)**		
Pre-transfer income trigger	1.196	(5.51)***			1.640	(8.82)***
Assets	-.377	(-0.64)	-.305	(-0.59)		
Asset eligibility trigger	-.338	(-0.30)			.093	(0.09)
Number of observations	625		625		625	
x^2	159.59		133.44		137.36	

Source: Calculated by Mathematica Policy Research, Inc. from 1979 ISDP Panel.

Note: Asymptotic t statistics are in parentheses.

*Significant at .10 level (one-tailed test).
**Significant at .05 level (one-tailed test).
***Significant at .01 level (one-tailed test).